

Amendments to the Claims:

Please cancel claims 1-16 presented in the underlying International Application No. PCT/DE2003/003163, as well as new claims 1-13 presented in the international phase, and add new claims 17-36 as shown in the listing of claims.

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-16 (canceled)

Claim 17 (new): A scanning microscope for imaging an object, comprising:

a light source;

a spectrally selective detection device;

an illumination beam path extending from the light source to the object;

a detection beam path extending from the object to the detection device, at least one wavelength range of light extending along the detection beam path being detectable using the spectrally selective detection device;

a spectrally selective element useable to select light from the light source so as to illuminate the object, the spectrally selective element being useable to mask out of the detection beam path the selected light from the light source reflected or scattered on the object;

an illumination slit diaphragm disposed in the illumination beam path and configured to generate a linear illumination pattern in a region of the object; and

a detection slit diaphragm disposed in the detection beam path and configured to detect the light coming from the linear illumination region from a focal plane so as to provide a confocal slit scanner;

wherein at least one of a slit length and a slit width of at least one of the illumination slit diaphragm and the detection slit diaphragm are variably settable.

Claim 18 (new): The scanning microscope as recited in claim 17 wherein at least one of the illumination slit diaphragm and the detection slit diaphragm includes a moveably arranged first diaphragm side.

Claim 19 (new): The scanning microscope as recited in claim 18 wherein at least one of the illumination slit diaphragm and the detection slit diaphragm includes a moveably arranged second diaphragm side, the first and second diaphragm sides together forming at least one of the illumination slit diaphragm and the detection slit diaphragm.

Claim 20 (new): The scanning microscope as recited in claim 17 further comprising a variable-focus optical system associated with at least one of the illumination slit diaphragm and the detection slit diaphragm and configured to vary at least one of a respective effective slit length and a respective effective slit width of at least one of the illumination slit diaphragm and the detection slit diaphragm.

Claim 21 (new): The scanning microscope as recited in claim 17 wherein the spectrally selective element includes an actuatable active optical component.

Claim 22 (new): The scanning microscope as recited in claim 21 wherein the active optical component includes at least one of an acousto-optical tunable filter and an acousto-optical deflector.

Claim 23 (new): The scanning microscope as recited in claim 17 wherein the spectrally selective detection device includes:

a spectral splitting device configured to spectrally split the light extending along the detection beam path;

a selection device configured to select a first spectral region for detection using a first detector of the detection device; and

a reflecting device configured to reflect at least a part of a non-selected spectral region for detection with a second detector of the detection device.

Claim 24 (new): The scanning microscope as recited in claim 23 wherein the spectral splitting device includes a prism.

Claim 25 (new): The scanning microscope as recited in claim 17 wherein the detection device includes at least one of a flat detector and a linear detector having a spatial resolution corresponding to a respective flat or linear shape of the detector.

Claim 26 (new): The scanning microscope as recited in claim 25 wherein the detector includes a CCD element including at least one of a CCD array and a CCD line.

Claim 27 (new): The scanning microscope as recited in claim 26 further comprising an adaptation optical system disposed the detection beam path upstream of a detector of the detection device and configured to adapt a spectral region to be detected to a shape of the detector.

Claim 28 (new): The scanning microscope as recited in claim 27 wherein adaptation optical system is variable.

Claim 29 (new): The scanning microscope as recited in claim 26 further comprising a light recombining device disposed in the detection beam path upstream of the detector and configured to generate at least one of a substantially linear and a focused light beam.

Claim 30 (new): The scanning microscope as recited in claim 27 further comprising a light recombining device disposed in the detection beam path upstream of the detector and configured to generate at least one of a substantially linear light beam and a focused light beam.

Claim 31 (new): The scanning microscope as recited in claim 29 wherein the light recombining device includes at least one of a lens, a prism, an optical diffraction grating and a hologram.

Claim 32 (new): The scanning microscope as recited in claim 30 wherein the light recombining device includes at least one of a lens, a prism, an optical diffraction grating and a hologram.

Claim 33 (new): The scanning microscope as recited in claim 17 wherein the detection device includes a detector having a read-out rate in a μs or ns range so as to enable at least one of a lifetime experiment and a decay behavior of a luminescence specimen to be time-resolved.

Claim 34 (new): The scanning microscope as recited in claim 33 wherein the lifetime experiment is a fluorescent lifetime experiment.

Claim 35 (new): The scanning microscope as recited in claim 17 wherein the detection device includes a detector having an activation unit that allows a time-related activation and deactivation of the detector.

Claim 36 (new): The scanning microscope as recited in claim 17 wherein the light source is configured to provide a multi-photon excitation of at least one of the object and a marker configured to mark the object.